AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): A method of compensating for bending of an optical fibre in light intensity-based optical measuring systems, said light intensity-based optical measuring systems comprising a sensor element connected to a measuring and control unit via optical fibre and being adapted for providing a signal corresponding to a measurement of a physical parameter, said method comprising

generating a measuring light signal;

transmitting the measuring light signal through the optical fibre towards the sensor element[[,]];

generating a reference light signal;

transmitting the reference light signal through the same optical fibre without being affected by the sensor element due to the measuring light being separated from the reference light, wherein said measuring signal and said reference signal have different wavelengths[[,]];

detecting said measuring signal after being influenced by the sensor element;

detecting said reference signal after being transmitted through the optical fibre and after being reflected by said sensor element;

compensating for bending of the optical fibre by reference to correction data based upon pre-stored data concerning a relationship between the measured reference signal and the measured measuring signal as a function of the bending

influence upon said optical fibre, wherein said measuring signal causes optical interference in a cavity associated with the sensor element.

Claim 2 (canceled)

Claim 3 (previously presented): The method according to claim 1, wherein said correction data includes a stored table or function, describing a relationship measured beforehand, between the reference signal and the measuring signal, as a function of the bending influence.

Claim 4 (previously presented): A method according to claim 1, wherein said sensor is utilized for pressure measurements, said sensor element including a membrane being affected by the pressure surrounding the sensor element.

Claim 5 (previously presented): A device for measurements in optical measuring systems comprising:

a sensor element adapted for providing a signal corresponding to a measurement of a physical parameter in connection with the sensor element;

an optical fibre connected to the sensor element;

a first light source and a second light source arranged at the opposite end of the optical fibre and functioning to emit a first light signal and a second light signal, respectively, at different wavelengths, the first light signal defining a measuring signal, transmitted towards the sensor element through the optical fibre, and the second light signal defining a reference signal, transmitted through the optical fibre

without being affected by the sensor element due to the measuring light being separated from the reference light;

a first detector intended to detect a light signal modulated by the sensor element;

a second detector intended to detect a light signal reflected by the sensor element; and

a measuring and control unit, to which said detectors are connected, whereby said measuring and control unit comprising means for processing the values detected by said detectors, means for storing data concerning the relationship between the measured reference signal and the measured measuring signal as a function of the bending influence upon said optical connection, and means for correcting the value detected by the first detector in dependence of said correction data, wherein said sensor element comprising a cavity, shaped so as to create optical interference when feeding said measuring signal into the cavity.

Claim 6 (canceled)

Claim 7 (currently amended): The device according to claim ~~6~~ 1, wherein said cavity includes a plurality of molecular silicone and/or silicone dioxide layers which have been etched.

Claim 8 (previously presented): The device according to claim 7, whereby said cavity includes bonding layers.

Claims 9-11 (canceled)

Claim 12 (currently amended): The method according to claim 1, further comprising guiding the first measuring signal into a the cavity of the sensor element; and reflecting the reference signal from the sensor element without entry into the cavity.

Claim 13 (currently amended): The device of claim 5, wherein ~~the sensor element comprises a cavity into which~~ the measurement signal is guided into the cavity, whereas the reference signal is reflected by the sensor element without entering the cavity.

Claim 14 (new): The method according to claim 1, wherein characteristics of material forming at least one surface of said cavity permits guiding the measuring signal into the cavity and causes reflectance of the reference signal from the cavity.

Claim 15 (new): The method of claim 1, wherein the wavelength of the measuring light signal is selected to exceed a limit value and the wavelength of the measuring light signal is selected to be less than said limit value.

Claim 16 (new): The method of claim 15, wherein said limit value is based on a characteristic of the senor element material.

Claim 17 (new): The method of claim 15, wherein dimensions of the cavity are determined based on the first selected wavelength, the second selected wavelength and the limit value.

Claim 18 (new): The device of claim 5, wherein characteristics of material forming at least one surface of said cavity permits guiding of the measurement signal into the cavity and causes reflectance of the reference signal from the cavity.

Claim 19 (new): The device of claim 5, wherein the wavelength of the first light signal exceeds a limit value and the wavelength of the second light signal is less than the limit value.

Claim 20 (new): The device of claim 19, wherein said limit value is based on a characteristic of the sensor element material.

Claim 21 (new): The device of claim 19, wherein dimensions of the cavity are determined based on the first wavelength, the second wavelength and the limit value.